

Topics in Mathematical Economics

Economics 582, Winter 2007

TTH: 1:35-2:50

Instructor: Val Lambson

Office: 151 FOB

Office Hours: TTH 3:00-4:15

Course Description and Objectives

This is an advanced course in mathematical economics. The mathematical content is necessarily substantial. Therefore, although there are no strictly required prerequisites, students who possess mathematical maturity will benefit most. Mathematical maturity is gained by doing a lot of mathematics, which you should be doing anyway if you want to go to graduate school in economics. For example, Math 112, 113, 214, and 343 are forcefully recommended (in the sense that you would be crazy to go to graduate school without them). Highly recommended (in the sense that you would be really happy to have had them) are Math 315 and 316 as well as Statistics 441 and 442. Finally, although Economics 580 is not strictly required, most 582 students will have had it and the professor will assume familiarity with the mathematical concepts covered there.

Class Policies

Grading will be based on homework, student presentations, a midterm examination and a final examination. All students should study the assigned readings in advance. The course will begin with a series of lectures on mathematical economics and game theory. The midterm examination will cover this material. The professor understands the final examination is to be given in class on 23 April from 11:00-2:00, but students should verify this from the class schedule. These examinations will not be given early under any circumstances, even if you buy a nonrefundable ticket before talking to me because you think I don't really understand sunk costs. .

Whether present or absent, students are responsible for all announcements made in class.

Homework is due at the beginning of class. Late assignments will receive no credit, even if you missed the bus or your computer ate them.

College and University Policies

Please refer to the Class Schedule for the University's statements on harassment, discrimination and the honor code.

Game Theory:

Mas-Colell, Whinston, and Green (1995), *Microeconomic Theory*, chapters 7-9 and 13-14.

Nash (1951), Non-cooperative games, *Annals of Mathematics*, Vol. 54, pp. 289-295.

Selten (1975), Reexamination of the perfectness concept for equilibrium points in extensive games, *International Journal of Game Theory*, Vol. 4, pp. 25-55.

Kreps and Wilson (1982), Sequential equilibrium, *Econometrica*, Vol. 50, pp. 863-894.

Fudenberg and Tirole (1991), Perfect Bayesian and sequential equilibrium. *Journal of Economic Theory*, Vol. 53, pp. 236-260.

Cho and Kreps (1987), Signaling games and stable equilibria, *Quarterly Journal of Economics*, Vol. 102, pp. 179-221.

Banks and Sobel (1987), Equilibrium selection in signaling games, *Econometrica*, Vol. 55, pp. 647-662.

Friedman (1971), A noncooperative equilibrium for supergames, *Review of Economic Studies*, Vol. 38, pp. 1-12.

Green and Porter (1984), Noncooperative collusion under imperfect price information, *Econometrica*, Vol. 52, pp. 87-100.

Abreu (1988), Towards a theory of discounted repeated games, *Econometrica*, Vol. 56, pp. 383-396.

Lambson (1987), Optimal penal codes in price-setting supergames with capacity constraints, *Review of Economic Studies*, Vol. 54, pp. 385-398.

Student Presentations based on Repeated Games and Reputation, by Mailath and Samuelson.